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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,986	02/14/2002	Klaus H. Oehr	2296-100	4971

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Vermette & Co.
200 Granville Street, Suite 230
Box 40 Granville Square
Vancouver, BC V6C 1S4
CANADA

EXAMINER

LANGEL, WAYNE A

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073286

Applicant(s)

Behr

Examiner

Langel

Group Art Unit

1754

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 8-22-03

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-18 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-18 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 99/58228 (newly cited). No distinction is seen between the process disclosed by WO 99/58228, and that recited in applicant's claims. WO 99/58228 discloses a process for treating cold combustion flue gas containing mercury, comprising injecting chlorine in gaseous or liquid form into the gas stream having a temperature greater than 100°C. (See the Abstract and page 3, lines 12-22.) Applicant's claims do not require the provision of

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alkaline solid particles in the flue gas in order to adsorb a portion of the mercuric halide, since applicant's claim 1 recites "providing one of a liquid and alkaline solid particles in said flue gas". Accordingly applicant's claims are anticipated by WO 99/58228, since WO 99/58228 discloses injection of the chlorine in liquid form, which would constitute the "liquid" recited in line 7 of applicant's claim 1.

Claims 1-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Abstract of the article by Chun Wai Lee ("Mercury Control Research: Effects of Flyash and Flue Gas Parameters on Mercury Speciation") in view of the article by Galbreath et al. The Abstract of the article by Lee et al. discloses that the gas-phase reaction of elemental mercury with chlorine is fast. The differences between the process disclosed by Lee et al., and that recited in applicant's claims, are that Lee et al. do not specifically disclose that the flue gas has a temperature in excess of 100°C, or that alkaline solid particles should be present in the flue gas in order to adsorb at least a portion of the mercuric halide which is formed. It would be prima facie obvious to treat a flue gas having a temperature in excess of 100°C in the process of Lee et al., since it is well-known that an increase in temperature in general will increase the rate of a reaction, and one of ordinary skill in the art would be motivated to increase the rate of reaction of the

elemental mercury with chlorine in the process of Lee et al. for economic and technical considerations. It would be further obvious from Galbreath et al. to include alkaline solid particles in the flue gas of Lee et al. to adsorb at least a portion of the mercuric halide which is formed, since the purpose of the process of Lee et al. is to eliminate mercury from the atmosphere, and Galbreath et al. discloses that mercuric halide can be eliminated by coal flyash which will sorb the gaseous mercuric chloride.

Claims 1-18 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation of "one of" renders the scope of the claims vague and indefinite. The phrase should be changed to --a member selected from the group consisting of-- to avoid this rejection. It is also indefinite as to whether claim 1 embraces providing a "liquid" in the flue gas, since the last three lines of claim 1 recite "providing one of a liquid and alkaline solid particles in said flue gas in order to adsorb at least a portion of said mercuric halide", but a liquid would absorb, rather than adsorb such mercuric halide.

Claims 1-18 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly

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connected, to make and/or use the invention. The specification does not enable one to adsorb (as opposed to absorb) mercuric halide with a liquid.

Claims 1-18 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no "description support" in the original specification for treating a flue gas having a temperature in excess of 100°C. Although Table 2 on page 8 of applicant's specification discloses flue gas temperatures ranging from 127°C-527°C, this would not provide "description support" for treating a flue gas having a temperature "in excess of 100°C", if for no other reason than that there is no disclosure or appreciation in applicant's specification that a flue gas having a temperature of between 100°C and 127°C could be treated.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (703) 308-0248. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can

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be reached on (703) 308-3837. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

WAL:cdc

November 17, 2003

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER